DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE IDAHO DEPARTMENT OF HEALTH AND WELFARE, DIVISION OF ENVIRONMENT

OPEN-FILE REPORT 87-466
SHEET 1 OF 1

CONVERSION FACTORS

For readers who prefer to use metric units, conversion factors for inch-pound units used in this report are listed below. Constituent concentrations are given in mg/L (milligrams per liter), which is equal to parts per million. Specific conductance is expressed as µS/cm (microsiemens per centimeter at 25 degrees Celsius).

Multiply	By	To obtain
acre	4,047	square meter
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer

Temperature in °C (degrees Celsius) can be converted to °F (degrees Fahrenheit) as follows:

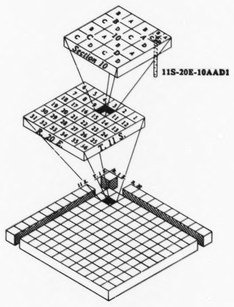
°F = (1.8)(°C) + 32

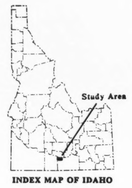
All water temperatures are reported to the nearest one-half °C.

WELL-NUMBERING SYSTEM

The well-numbering system used by the U.S. Geological Survey in Idaho indicates the location of wells within the official rectangular subdivision of public lands, with reference to the Boise base line and Meridian. The first two segments of the number designate the township (north or south) and range (east or west). The third segment gives the section number; three letters, which indicate the ¼ section (160-acre tract), ¼-¼ section (40-acre tract), and ¼-¼-¼ section (10-acre tract); and serial number of the well within the tract.

Quarter sections are designated by the letters A, B, C, and D in counterclockwise order from the northeast quarter of each section. Within the quarter sections, 40-acre and 10-acre tracts are lettered in the same manner. Well 11S-20E-10AAD1 (example at right) is in the SE¼NE¼NE¼ sec. 10, T. 11 S., R. 20 E., and is the first well inventoried in that tract.



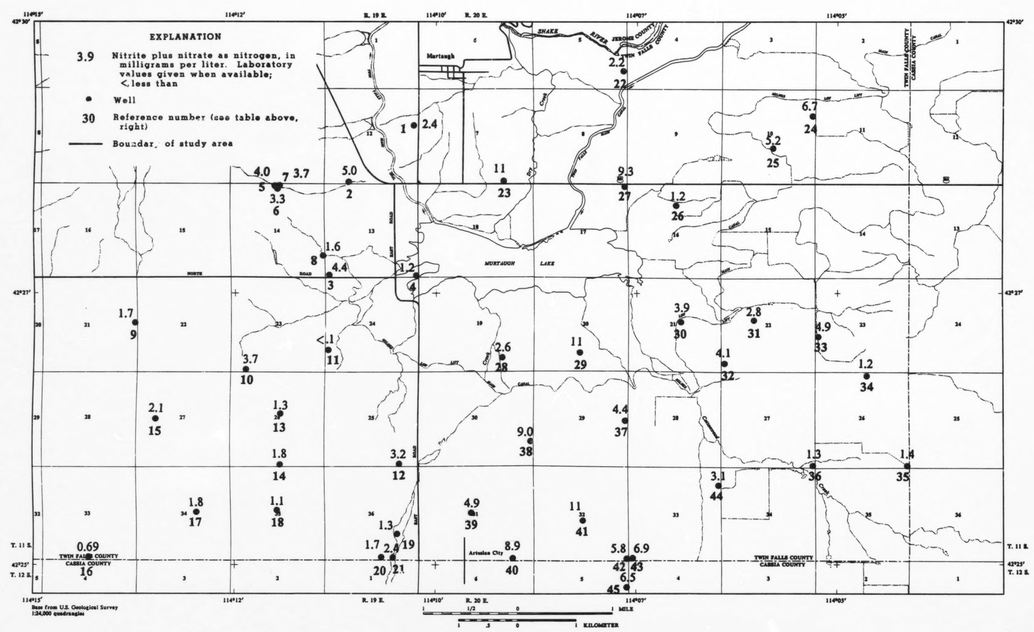


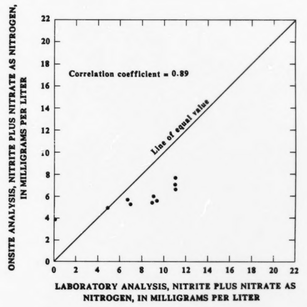
INDEX MAP OF IDAHO

WATER-QUALITY AND SELECTED WELL-INVENTORY DATA

Ref. number	Well location	Total depth of well (feet)	Onsite: Date, water level measured	Onsite: Water level (feet below land surface)	Onsite: Date sampled	Onsite: Specific conductance (µs/cm)	Onsite: pH (standard units)	Onsite: Temperature (°C)	Onsite: Bicarbonate, total (mg/L as HCO_3)	Onsite: Alkalinity, total (mg/L as $CaCO_3$)	Onsite: Chloride, dissolved (mg/L as Cl)	Onsite: Nitrogen, NO_2+NO_3 dissolved (mg/L as N)	Laboratory: Nitrogen, NO_2+NO_3 dissolved (mg/L as N)	Laboratory: Nitrogen, ammonia + organic dissolved (mg/L as N)
1	11S-19E-12ADD2	117	4- 5-84	50.66	8-10-87	580	7.5	13.5	280	210	24	2.4	-	--
2	13CCC1	--	3-28-84	103.20	8-10-87	1,550	7.7	14.0	420	340	160	5.0	-	--
3	13CCC1	400	3-13-85	161.89	8-10-87	1,050	7.6	13.5	340	280	94	4.4	-	--
4	13DDD1	--	8- 9-87	6.35	8- 9-87	839	7.5	13.0	320	260	25	1.2	-	--
5	14ABB1	250	--	--	8-11-87	1,180	7.8	17.5	280	230	120	4.0	-	--
6	14ABB2	833	3-27-84	224.95	8-11-87	928	7.7	20.0	230	190	100	3.3	-	--
7	14ABB3	582	--	--	8-11-87	1,320	7.8	14.5	730	280	120	3.7	-	--
8	14DAD1	920	3-27-84	168.60	8- 9-87	473	7.5	20.5	160	130	45	1.6	-	--
9	21DAA1	555	11- 3-51	158.13	8- 9-87	430	7.5	26.0	100	86	54	1.7	-	--
10	23CCD1	536	--	--	8- 9-87	1,200	7.7	16.0	150	120	190	3.7	-	--
11	24CBC1	703	3-28-84	154.80	8- 9-87	2,000	7.2	13.5	280	210	320	3.9	<0.1	--
12	25DCD1	257	3-28-84	111.90	8- 9-87	808	8.0	13.0	260	210	37	3.2	-	--
13	26ACC1	855	--	--	8- 9-87	380	7.7	27.0	150	110	34	1.3	-	--
14	26DCC3	747	--	--	8- 9-87	516	7.4	19.0	120	98	70	1.8	-	--
15	27BCD1	665	3-28-84	223.70	8- 9-87	502	7.5	24.0	150	110	60	2.1	-	--
16	33CDD1	1,025	--	--	8-23-81	248	8.0	32.0	100	82	23	--	.69	--
17	34DBA1	840	4- 3-84	280.55	8- 9-87	372	7.4	25.5	110	94	36	1.8	-	--
18	35BDD3	720	--	--	8-23-81	348	7.8	23.0	120	98	28	--	1.1	--
19	36DAC1	585	--	--	8- 9-87	432	7.5	23.0	160	130	48	1.3	-	--
20	36DCC1	737	3- 3-84	312.30	8- 9-87	372	7.3	24.5	130	110	34	1.7	-	--
21	36DCD1	--	8-11-87	233.27	8-11-87	902	7.1	15.5	180	150	140	2.4	-	--
22	11S-20E- 3DDA1	138	4- 5-84	113.52	8-10-87	582	7.8	15.5	250	200	41	2.2	-	--
23	7DCD1	--	4- 6-84	23.93	8-10-87	788	7.6	13.5	340	280	33	7.7	11	1.5
24	10AAD1	300	8-10-87	239.23	8-10-87	831	7.8	15.5	380	310	52	5.7	6.7	.50
25	10DBC3	203	3-28-84	183.35	3-30-88	877	7.7	14.0	380	310	30	--	5.2	--
26	16BAD1	240	8-11-87	128.84	8-11-87	645	7.8	14.0	200	160	71	1.2	-	--
27	17AAA1	175	8-11-87	101.79	8-11-87	884	7.7	13.3	420	340	29	3.6	9.3	.40
28	19DCA1	--	8-11-87	43.13	8-11-87	787	7.2	12.0	370	300	41	2.6	-	--
29	20CDA1	30	--	--	8-10-87	1,030	7.4	12.0	430	350	52	7.1	11	1.9
30	21ACC1	173	3-28-84	86.82	8- 9-87	1,110	7.5	14.0	350	290	97	3.9	3.9	--
31	22BCC1	188	3-27-84	138.14	8- 9-87	1,350	7.4	15.0	340	280	160	2.5	-	--
32	23CCB1	180	3-27-84	80.81	7-10-85	2,070	7.7	14.5	350	280	290	--	4.1	--
33	23CBC1	727	3-28-84	161.28	8-10-87	1,170	7.5	13.5	190	160	250	4.9	-	--
34	26BAA1	600	3-27-84	191.39	7-10-85	581	7.7	17.5	180	140	66	--	1.2	--
35	26DDD1	350	3-28-84	158.04	8- 9-87	440	7.8	16.0	160	130	52	1.4	-	--
36	27DDD1	350	8-11-87	160.85	8-11-87	388	7.8	15.5	180	150	27	1.3	-	--
37	28BAA1	280	--	--	8- 9-87	1,020	7.3	13.0	420	350	70	4.4	-	--
38	30DBA1	250	3-30-84	85.61	8-23-87	1,830	7.2	12.0	380	310	230	6.0	9.0	2.8
39	31BDC1	135	4- 2-84	117.15	8-11-87	1,010	7.4	14.5	340	280	100	4.9	4.9	.80
40	31DDC1	363	3-30-84	137.90	8- 9-87	1,240	7.3	14.0	370	300	140	5.4	8.9	1.9
41	32CAD1	254	--	--	8-10-87	1,770	7.3	14.5	340	280	290	8.6	11	1.4
42	32DDD1	--	4- 2-84	150.70	4-15-87	1,400	--	--	--	--	230	5.8	-	--
43	33CCC1	405	4- 2-84	154.18	8- 9-87	1,320	7.4	17.0	400	330	280	5.3	6.9	1.4
44	33ADB1	1,020	--	--	8- 8-87	1,200	7.5	22.5	230	180	220	3.1	-	--
45	12S-20E- 4BCB1	--	--	--	4-15-87	1,580	--	--	--	--	270	8.5	-	--

Notations: --, no data available; <, less than




Correlation coefficient = 0.89
Line of equal value
ONSITE ANALYSIS, NITRITE PLUS NITRATE AS NITROGEN, IN MILLIGRAMS PER LITER
LABORATORY ANALYSIS, NITRITE PLUS NITRATE AS NITROGEN, IN MILLIGRAMS PER LITER

The purpose of this study was to determine concentrations of nitrogen compounds in ground water in the Murtaugh Lake area. The Murtaugh Lake area is about 2 mi south of the Snake River and about 18 mi west of Burley. The scope of the study was limited to inventorying 45 wells. Water-level measurements were made only at wells where previous water-level data were not available. Onsite determinations were made of specific conductance, pH, water temperature, and concentrations of alkalinity, dissolved chloride, and dissolved nitrite plus nitrate (as nitrogen). When onsite nitrite plus nitrate concentrations exceeded about 6 mg/L nitrogen, ground-water samples were collected for nitrite plus nitrate (as nitrogen) and ammonia plus organic nitrogen (as nitrogen) analyses at the U.S. Geological Survey National Water Quality Laboratory.

Locations of wells and concentrations of nitrite plus nitrate (as nitrogen) are shown on the map at left. Water-quality and selected well-inventory data for 40 wells sampled during 1987 and 5 wells sampled during the period 1981-86 are shown in the table above. A statistical summary of selected water-quality data is shown in the table below, and onsite versus laboratory measurements of nitrite plus nitrate (as nitrogen) concentrations are shown in the graph at left.

STATISTICAL SUMMARY OF SELECTED WATER-QUALITY DATA

[*, onsite analysis; **, laboratory analysis; ≥, greater than or equal to]

Water-quality constituent	Number of samples	Median (50 percent)	Mean	Range: Minimum	Range: Maximum	Number of samples with concentrations exceeding national drinking-water limits
*Specific conductance (µs/cm)	45	902	930	245	2,070	
*pH (standard units)	43	7.5	7.5	6.9	8.0	
*Temperature (°C)	43	15.0	17.0	12.0	32.0	
*Bicarbonate (mg/L as HCO_3)	43	280	260	100	430	
*Alkalinity (mg/L as $CaCO_3$)	43	230	210	82	350	
*Chloride, dissolved (mg/L as Cl)	43	70	110	23	320	6 ≥ 250 mg/L[1]
*Nitrogen, nitrite + nitrate, dissolved (mg/L as N)	40	3.5	3.8	1.2	7.7	
**Nitrogen, nitrite + nitrate, dissolved (mg/L as N)	13	6.7	6.1	<.1	11	3 ≥ 10 mg/L[2]
**Nitrogen, ammonia + organic, dissolved (mg/L as N)	9	1.4	1.4	.40	2.8	

[1]U.S. Environmental Protection Agency, 1982a, Secondary maximum contaminant levels (section 143.3 of part 143, National secondary drinking-water regulations): U.S. Code of Federal Regulations, Title 40, parts 100 to 149, revised as of July 1, 1982, p. 374.

[2]-----1982b, Maximum contaminant levels (subpart B of Part 141, National interim primary drinking-water regulations): U.S. Code of Federal Regulations, Title 40, parts 100-149, revised as of July 1, 1982, p. 315-316.

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SELECTED WATER-QUALITY DATA FOR THE MURTAUGH LAKE AREA, SOUTH-CENTRAL IDAHO, JUNE 1987

By
D.J. Parliman and H.W. Young

1987